



A New Perspective: The impact of sensory washroom design on wellbeing in the workplace

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Hello and welcome.

I'm Lynne, Specification Manager in London for Geberit UK.

Today we're going to discuss how sensory washroom design can impact on well-being in the workplace.

At Geberit, we design and manufacture washroom products and you design the spaces and specify the products that go into them.

So, wherever they are, washrooms provide the perfect opportunity to deliver functional solutions to our 24/7 society, as well as a shot in the arm for our health and wellbeing at work.



- 1 Introduction to Geberit
- 2 Workplace Washrooms
- 3 The Sensory Experience
- 4 Sensory Washroom Design
- 5 Open Forum Discussion

On the agenda today, we have a brief introduction to Geberit.

Then the bulk of the presentation will cover workplace washroom and touch on the science behind how our senses function.

We'll also discuss how an understanding of those 2 things can help us design washrooms that are conducive to well-being and relaxation.

We'll finish with an open forum discussion.



1 Introduction to Geberit

So, first of all, a brief introduction to Geberit.

Global Presence

Powerful
brand

Outstanding
technology
platform

Successful
business
model

Excellent,
focused,
organic
growth



GEBERIT

The Geberit Group is the European market leader in washroom products, with a global presence and a powerful brand.

It was founded in 1874 in Rapperswil-Jona, a small town on the banks of Lake Zurich in Switzerland and has established a reputation for delivering premium quality through innovative technology.

We employ more than 12,000 people in over 40 countries and have 35 production plants.

We generate year on year growth and our current annual turnover is in excess of 2 billion pounds.

UK Market Leader

Hands-on
Training
Academy

Hydraulic
Areas

Showroom



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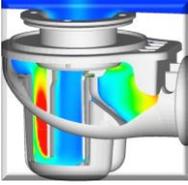
In the UK, our HO is just outside Warwick, in a purpose built facility.

We have a practical area for hands-on training and a two-storey high hydraulic tower.

We run coloured water through the see-through pipes to demonstrate good and bad plumbing practice.

We also have a fully equipped sanitary ware showroom – so if you, or your clients and contractors, would ever like to see any of our products in the flesh, please come and see me afterwards, as you're more than welcome to visit.

We invest in Ten Technology areas



Simulations



Drinking Water
Hygiene



Surface
Technology



Materials
Science



Hydraulics



Fire Protection



Acoustics



Process
Engineering



Electronics



Statics



GEBERIT

2 years ago, Geberit acquired a global sanitary ware manufacturer called Sanitec.

So now, apart from these 10 areas of technology that we have always invested in, we also have an excellent understanding of the interface between the functionality of the unseen products behind the wall – supply pipework, drainage pipework and support frames etc. – and the aesthetics of what is visible in front of the wall – WCs, flush mechanisms, urinals and the like.

Out of this list, surface technology and acoustics will be of particular relevance to our topic today.



2

Workplace Washrooms

So, moving onto washrooms in the workplace



Washrooms are very often the first place a visitor will go when arriving at a company.
An impression will be created and an impression will

Workplace (Health, Safety and Welfare) Regulations 1992, Regulation 20

Quantities

At least 1 WC

Separate WCs for Male + Female staff

1-5 staff = 1 WC, increasing with employees to 5 WCs for between 76-100 staff



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Workplace (Health, Safety and Welfare) Regulations of 1992 outlines the recommended quantity of WCs required in relation to staff numbers, with the numbers increasing with staff numbers.

Despite this it often seems that there aren't enough – ladies' ones, in particular.

They state that you must have a least one WC and they promote separate gender facilities, but this hasn't been updated since 1992 and things have moved on.

Workplace (Health, Safety and Welfare) Regulations 1992, Regulation 20

Requirements

- Located in readily accessible places
- Have adequate ventilation and lighting
- Have hot and cold water, as well as soap for washing hands
- Have a lock on the door
- Be kept clean and tidy

MINIMUM STANDARDS



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The guidelines go on to say that the facilities must be:

- Located in readily accessible places
- Have adequate ventilation and lighting
- Have hot and cold water, as well as soap for washing hands
- Have a lock on the door
- Be kept clean and tidy

But, these are the absolute minimum requirements and designing above the required levels will be much appreciated.

The Equality Act 2010



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Requirements regarding The Equality Act of 2010 also needs to be taken into account.

This legislation has been broadened to include a far wider range of applications than the previous Disability Discrimination Act that it replaced.

WC facilities now need to provide an all-encompassing, gender-neutral environment, which doesn't need gender signage and also gives privacy and dignity to any user.

Superloos provide the perfect opportunity for this.

They will contain a WC and wash hand basin, within one space and fully contained between the floor and ceiling.

They do take up more space than a row of cubicles would and can be somewhat insular, discouraging workplace interaction and communication.

As a company we have taken this trend very seriously and we can now help you by providing all the specification clauses for a Superloo pack.

Building Regulations 2010:

Approved Document M



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The picture shows the requirements for a fully accessible self contained WC facility for left hand transfer.

This needs to be located as close to the Male and Female WCs areas and in addition to those.

There are very specific dimensional requirements are covered by Building Regulations Approved Document M – the distance of the hinged grab rail from the centre of the WC, for example.

And the colours used need to have a 30 lumen difference between them.

One of the key points, following on from the Equality Act we've just covered, is that they should look and feel as much like the standard WC areas as possible.



Let's have a look at the requirements for separate sex WC cubicle facilities in a commercial building

If only 1 cubicle, it must be designed for ambulant usage.

This is for people who are not wheelchair bound, but for people on crutches or who have restricted use of their body.

The facility must be 800mm wide internally and have 2 horizontal and 1 vertical grab rail.

There must be a 750mm clearance from the front edge of WC to the door swing and the door must be outward opening.

The WC (including seat) must be 480mm high, but there is no requirement for a long projection WC pan.

Cubicle doors must have an emergency release mechanism allowing them to be opened outwards, from the outside, in case of an emergency.

If x2 cubicles are provided then there should be one standard and one ambulant facility provided.

The standard cubicles need to be a minimum of 750mm wide

They must have 450mm diameter clearance from front edge of the WC to the door swing so that you can turn to close the door easily.

Cubicle doors can be inward opening, but must be capable of being lifted off from the outside in case of an emergency.

Where x4 or more cubicles exist then one cubicle must be enlarged and this is in addition to the ambulant cubicle.

The enlarged cubicle must be 1200mm wide with an outward opening door.

It must have one horizontal and one vertical rail set around WC.

The enlarged cubicle must have a horizontal closing bar on the door.

There must be a shelf and a folding baby change table, unless a separate baby change facility is provided adjacent to the washroom.

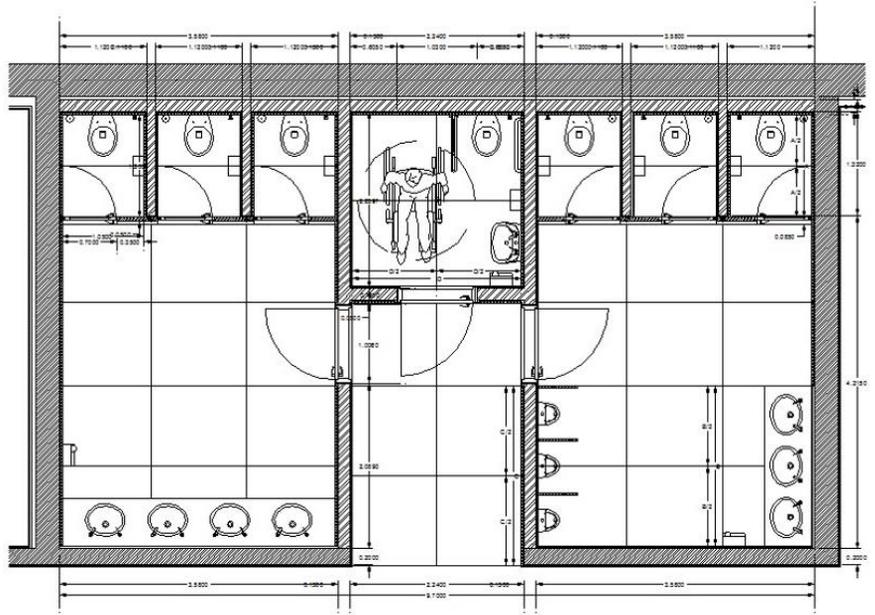
Taps and WC cubicle door hinges + locks should be able to be operated with a closed fist / elbow and require less the 20 Newtons of force.

National airports are a good example of these layouts.

National airports and train stations are good examples of these types of layouts.

Location

The process of getting to the washroom can be as important as the ambience of the area itself.



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Apple's Steve Jobs was one of the first business leaders to recognise the potential to use the washroom location as an opportunity to social engineer interaction among employees.

A set of centrally located WC areas means people will pass through areas of activity that they don't work within, making them feel more connected to the organisation and their fellow workers.

This layout also promotes more walking, so provides a healthier option.

Keeping gender-specific WC areas close together can promote more mixed gender conversations, with non-gendered washrooms / SuperLoos providing the same function.

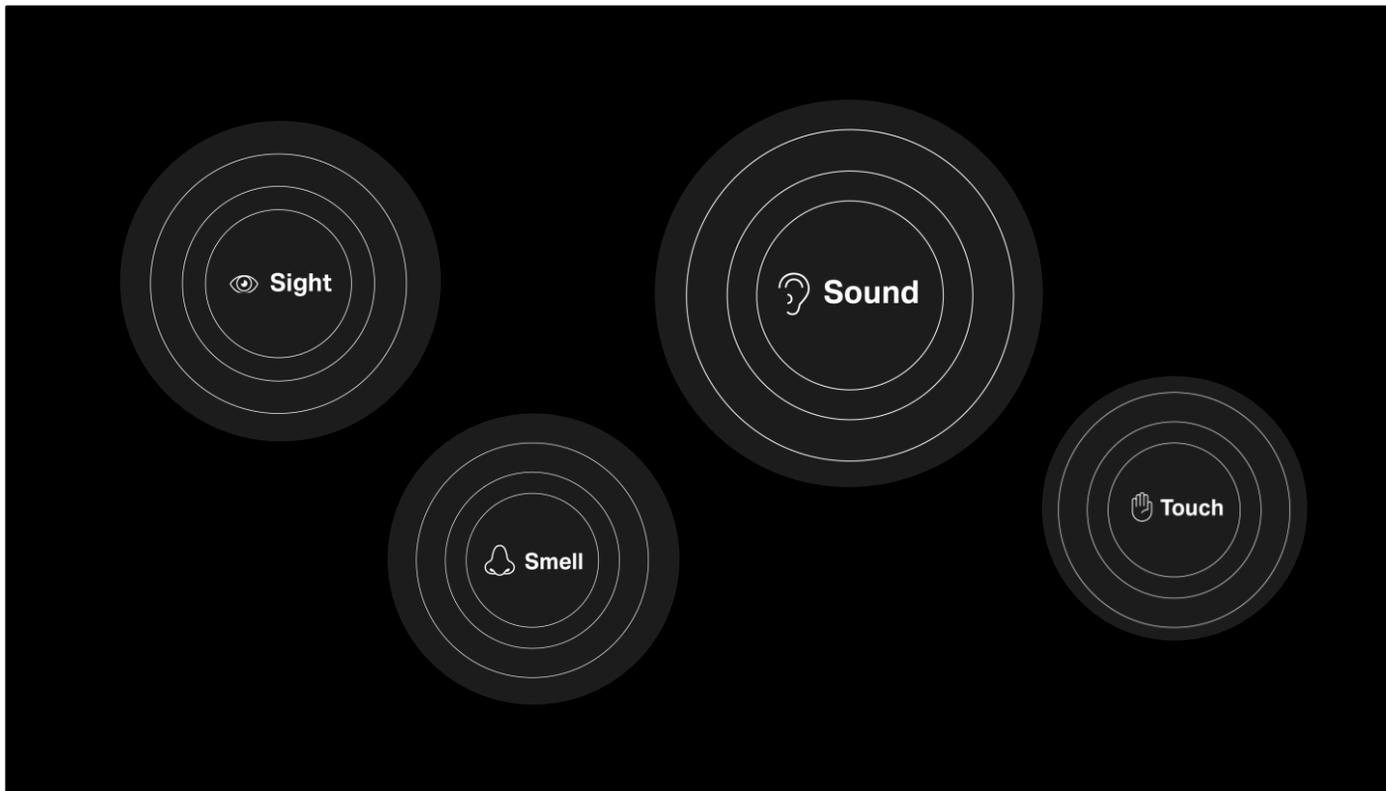
Keeping gender specific washrooms far apart will tend to promote same gender conversations instead.



3

The Sensory Experience

So let's have a look at what constitutes sensory experiences.



Whether you drive, walk, cycle or take public transport on your journey to work, you're constantly being bombarded with visual information, sounds and smells.

One of the last things you probably do before you head out of your front door, is use the bathroom.

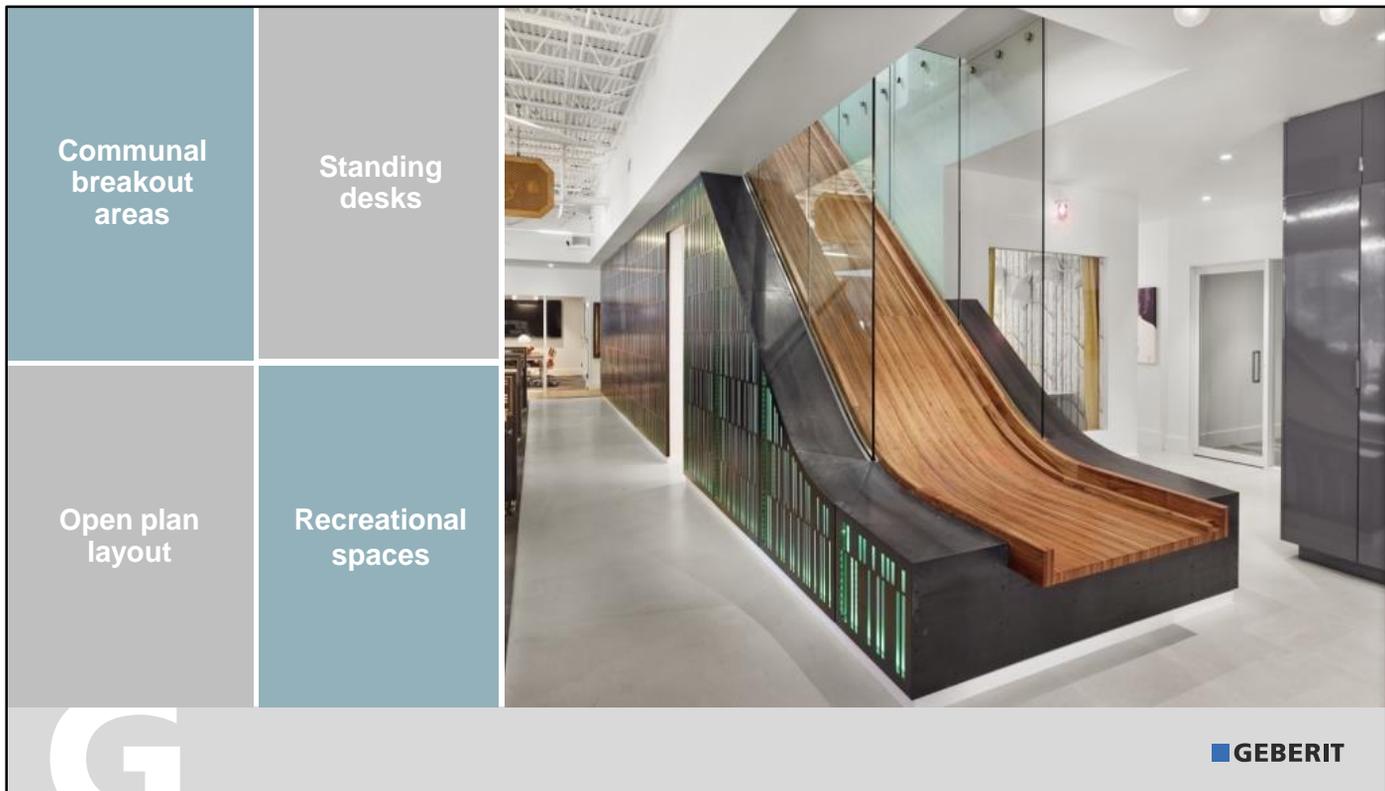
And one of the first things you'll generally do when you get to your office is use the bathroom again – even if it's just to wash your hands.

This washroom experience can subconsciously shape your day for good or bad, which brings workplace washroom design into sharp focus.



As a result of a rise in stress levels within the workplace, well-being and wellness have become trendy buzz words, with HR organizing lunchtime meditation, or yoga classes, as companies try their best to provide a sense of work/life balance and calm for their staff.

85% of staff say that this is what they expect from the company they work for and employers are feeling compelled to respond to these demands.



As a result, we now have communal breakout areas, standing desks and open plan office layouts to enhance social interaction and provide recreational spaces.

Gyms, bicycle racks and in-house catering are becoming more common, along with table football, pool tables or games rooms.

You may even be able to persuade the director to provide one of these.

These things are no longer considered to be a gimmick and in many cases they are designed as an integral part of an employee wellbeing strategy.

The washroom should be as important and can perform a crucial role in the well-being of staff.

2 in 5
UK employers now have a wellbeing strategy in place

12.5m
total absences for stress, depression or anxiety last year

4.1
average number of sick days per person, per year



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2 out of 5 companies in the UK are now implementing a specific wellbeing strategy is on the increase as many take steps to reduce absence.

The total absences for stress, depression or anxiety last year in the UK was 12.5 million, but the average number of sick days is now the lowest on record – just 4.1 days per person, per year.

So, things are improving.

For every  you invest in staff wellbeing

You could generate a return of   
in improved efficiency and productivity

The Stress Management Society





Ultimately, any absence impacts productivity and reduces profit.

The Stress Management Society has found that for every pound invested in staff wellbeing, 3 pounds can be generated in better efficiency + productivity.

Businesses are finally switching on to the fact that if they invest in the wellbeing of their workers, it could save them money in the long term.

Hearing

What we hear plays a key role in nurturing and healing.

Having a place to escape the clamour and din of everyday life is calming for the body and the mind.



■ GEBERIT

Hearing

What we hear plays a key role in nurturing and healing.

Having a place to escape the clamour and din of everyday life is calming for the body and the mind.

A recent study looked into noise on the underground.

They took 4 lines notorious for being noisy (Central, Jubilee, Bakerloo + Victoria) and found SPL continually in excess of 85dB, which in a factory environment, if a worker was exposed to that level of sound for 8 hours per day, their employer would be under a legal obligation to issue their staff with ear-protectors and enforce their use.

The highest was between Bethnal Green + Liverpool Street on the Central Line (110dB) and the study's recommendation was that if someone uses any one of those lines daily for their commutes to and from work, they should seriously consider wearing ear plugs.

A sobering thought.

Privacy

Privacy in the washroom environment is vitally important in how comfortable people feel about using the space.

Insufficient privacy could lead to people limiting their WC usage at work, which could result in health problems.



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Privacy

Floor to ceiling toilet cubicles can help resolve this problem, as you can see in the image here.

An environment that protects our anonymity can prevent the anxiety that comes with knowing who is making the noises in the cubicle next door

The use of white noise or installing a speaker system in the washroom spaces can create an audio sanctuary provide the user with the perception that they are separated from the person in the adjacent cubicle.

There is also not much worse than waiting in a queue for a cubicle and being able to hear absolutely everything going on inside the stalls.

Geberit Sound Lab

Unique within the industry

1750 m²

Operating since 1997

Fully decoupled

Full system acoustic testing



■ GEBERIT

With issues like this in mind, Geberit built a Sound Laboratory in 1997, demonstrating its commitment to sensory testing and technology.

Made up of three separate buildings, decoupled from the ground and from each other, this four-storey structure is unique to Geberit, enabling us to investigate the sound emissions of not only our products, but different installation techniques as well.

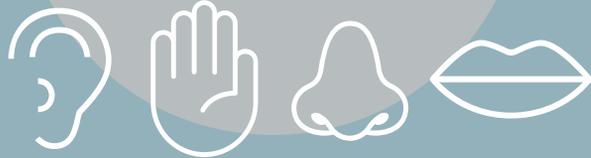
We also employ our own acousticians.

Sight

80% of our sensory impressions are registered through sight.

Having a place to escape the brightness and pattern of daily life will help to provide tranquillity.

10 million
pieces of information per
second



■ GEBERIT

Sight

We know that sight affects other senses too - for example, in restaurants where diners eat in the dark, food has been shown to taste different to how it would when the food is visible.

We take in 10 million separate pieces of information through our eyes per second.

Then you think that all the other senses are also processing data each at any given moment, and how easy it could be to become overwhelmed, making a space to escape even more important.

Aesthetics

Colour can have a huge impact on our mood.

Light colours, especially white can evoke thoughts of cleanliness.



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Aesthetics

So, paying attention to the aesthetics of the washrooms will be critical in creating a place of sanctuary.

Colour can have a huge impact on our mood, with light colours giving the illusion of cleanliness and space, for example.

But the lighter the colour in washroom areas, the more the dirt will show, so importance should be given to materials that are less likely to show dirt and have a surface technology that makes them quick and easy to clean.

A strict cleaning regime should also be instated – this will help with hygiene and odours too.

Most washrooms will have little or no natural light, so lighting design is important – if people need to redo make-up for example, it helps if they can see properly.

Providing a full length mirror and plenty of space alongside the WHBs is useful.

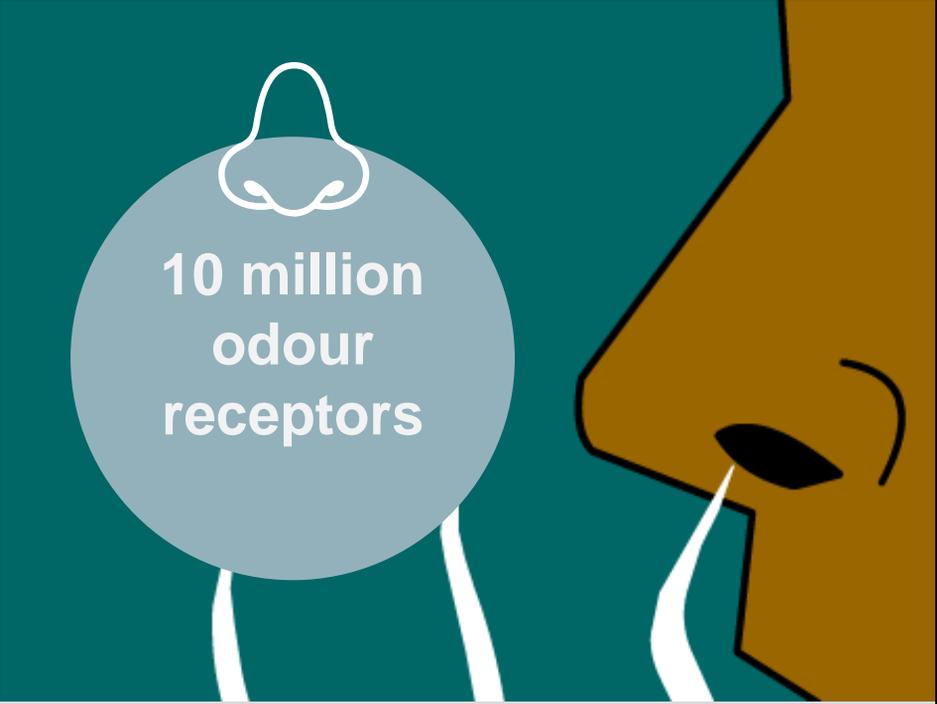
On a more practical note, rubbish bins, spare toilet paper, coat hooks and feminine supplies will add to washroom appeal.

Plants and art-work could also be incorporated and shelves added inside cubicles for phones, iPads and handbags.

Smell

Our sense of smell is highly evocative.

It is linked to our memories, it makes connections and triggers emotions.



10 million
odour
receptors



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Smell

A person's sense of smell is fairly unique to them, and good and bad smells are relatively subjective.

Olfactory nerves from the nose have a direct connection with the brain, which is why a smell can evoke memories or trigger emotions, so bad smells in a washroom area can have serious implications for visitors and staff alike.

We have 10 million odour receptors and interestingly, when people are disgusted by washroom odours, they are also more likely to notice dirt and other imperfections.



Initial Hygiene did a survey across the UK, France, Italy, Australia and Malaysia and found that:

77% of users will leave a smelly washroom with a negative impression of the organisation.

88% would leave the area as soon as possible.

28% would skip either washing their hands with soap / drying them properly if the area smelt bad.

24% would never return if they were visitors.

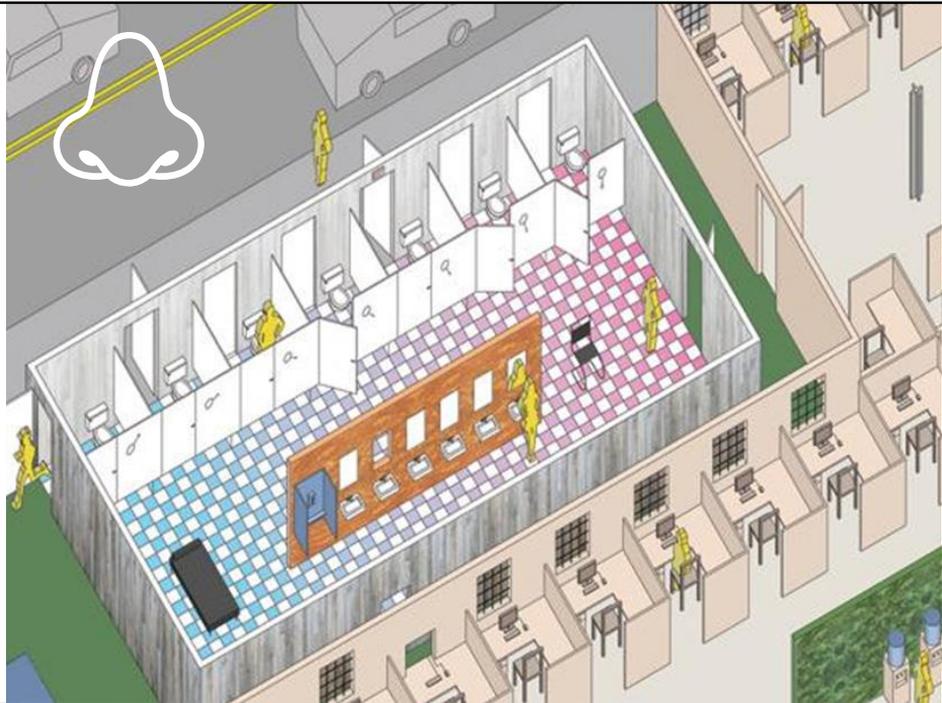
Waterless urinals can be problematic as cleaning staff generally don't like changing the filters / cartridges, so uric acid crystals can build up in the pipes causing smells and blockages – incidentally gout is caused by the very same build-up in our joints!

Ventilation

Washrooms often have no external windows, so air quality becomes crucial.

Masking the odours doesn't necessarily solve the issue.

"Outhouse"
Abrahams-May Architects, NY



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Ventilation

Many office washrooms will not have much natural ventilation, if any at all and so they rely on mechanical air changes, which ought to be between 8 + 12 times per hour, depending on the size of the facility.

Using air fresheners to mask the odours helps, but doesn't solve the underlying problem.

This design proposal for office WCs by Abrahams-May architects in NY imagines the washroom as an outhouse – spatially separated from the office and linked to the outside world, so that staff can get a break for a stroll around the park, if needs be with people assuming that they've just gone to the restroom.

Touch

Touch is stimulated by temperature and texture.

It is also inextricably linked to hygiene and technology.



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Touch

Touch is stimulated by temperature and texture, and is also inextricably linked to hygiene and technology.

There are many medical benefits linked to this sense and studies have shown that people who get hugged more regularly, live longer.

A woman, featured on the news recently, feels no pain at all and her DNA is now being studied for mutations to help develop new painkillers in the future.

Touch is also becoming an increasingly important part of our everyday life, especially where technology is concerned.

Fingerprints are increasingly used for security, whilst the rise in 'touch screens' means that it's more important than ever for designers of all kinds to consider touch.

Feeling

This is so essential to our well-being that we use the word 'feelings' to describe our emotions.



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Feeling

Touch is so essential to our wellbeing that we use the word 'feelings' to describe our emotions.

Our experience of the WC facilities provided by our employers can affect our day, leaving us feeling good or bad.

Feeling uncomfortable with workplace WCs can lead to staff limiting food and drink intake at work, which may in turn result in ill health.

We Work (a shared work space company) have identified a trend towards de-institutionalizing the workplace washroom, making it feel far more residential.

They also providing them with a strong platform to communicate their organization's brand and values to occupants.

Something as small as providing a good quality toilet paper, or no paper at all by using a combination bidet / WC, can add to our feelings of well-being and hygiene.

Touchless taps not only save up to 80% of the amount of water used, they also play a big part in stopping the transfer of germs around the office.



4

Sensory Washroom Design

As we have seen, our senses register everything around us.

And although this activity is often subconscious, it nevertheless draws deep upon our energy reserves.

This is why it's crucial that we do everything we can to welcome into our lives every opportunity to relax and recharge our batteries.

Workplace washrooms can help with this process.

Biophilic Architecture

Biophilia

/bɪˈɪə(ʊ)ˈfɪɪə/

Noun

An innate love for the natural world, supposed to be felt universally by humankind



GEBERIT

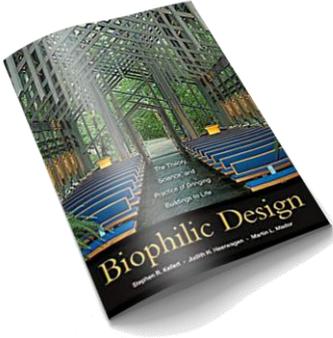
Biophilic Architecture is an innovative way of designing the buildings where we live, work and learn, in a way that connects us back to nature.

It is believed to benefit our health and well-being and is growing in importance.

In fact, the movement is gaining so much traction that new standards such as the WELL Building Standard are being introduced, to measure the impact of the built environment on human health and wellbeing.

The result is that we're seeing many more buildings and public spaces designed with this in mind like the 'Bosco Verticale' (Vertical Forest), a residential development in Milan, that we can see here.

Biophilic Interior Design



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Following on from that, Biophilic Interior Design focuses on bringing the outside in, as a medium to calm the senses and create spaces that are more conducive to genuine well-being.

A book by Stephen R. Kellert discusses biophilic interior design in detail, but we'll run through some of the basic principles here today.

Biophilic Interior Design

- Visual Connections
- Non-visual Connections
- Non-rhythmic Sensory Stimuli

- Thermal and Air Flow
- Presence of Water
- Dynamic and Diffuse Light



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Establishing a **visual connections** to nature is done through sight, by using something as simple as a pot-plant, or a living wall.

Non-visual connections relate to textures that link back to nature.

Non-rhythmic, sensory stimuli is the small movement caught out of the corner of your eye. It's unpredictable, like a leaf rustling in a faint breeze.

Considering the **flow of air and heat** in a space will help to avoid designing spaces that feel stuffy and oppressive, or too breezy with papers blowing off desks.

Being able to see, hear and touch **water** can enhance a person's engagement in the space. Moving water also creates negative ionisation, which is a mild physiological stimulant.

The way we use **light** reinforces our connection to the natural rhythms of daylight, which change through the day and the year. Extremes of brightness / dimness are discouraged.

Biophilic Interior Design

- Connection to Natural Systems
- Biomorphic Forms and Patterns
- Material Connections

- Complexity and Order
- Prospect and Refuge
- Mystery
- Risk and Peril



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By connecting with **natural systems**, we can link people to the seasons - a rooftop garden will evolve over time.

Biomorphic forms and patterns often appear as naturally-occurring shapes that provide a sense of harmony and continuity.

Using **natural materials** from the local area will reflect the native ecology.

The relationship between the individual and the space also needs consideration.

Complexity and order refer to a hierarchy between space and scale, which occurs naturally in plants and geography – feeling claustrophobic or marooned in a space as 2 extremes.

Prospect incorporates views outward, over long distances giving a bigger picture.

While **Refuge** also looks outward, but from a protected or covered position.

Mystery suggests that there is more to come in a space, drawing you in and providing anticipation – a good example would be a lobby with a screen that prevents you from seeing the entire room from the point of entry.

Risk and peril provide us with a rush of dopamine and can be managed through glass railings, cantilevers, and stepping stones in a pool of water, for example, as they represent a small, but manageable amount of risk in a workplace environment.

Sanctuary

Creating gold standard washrooms



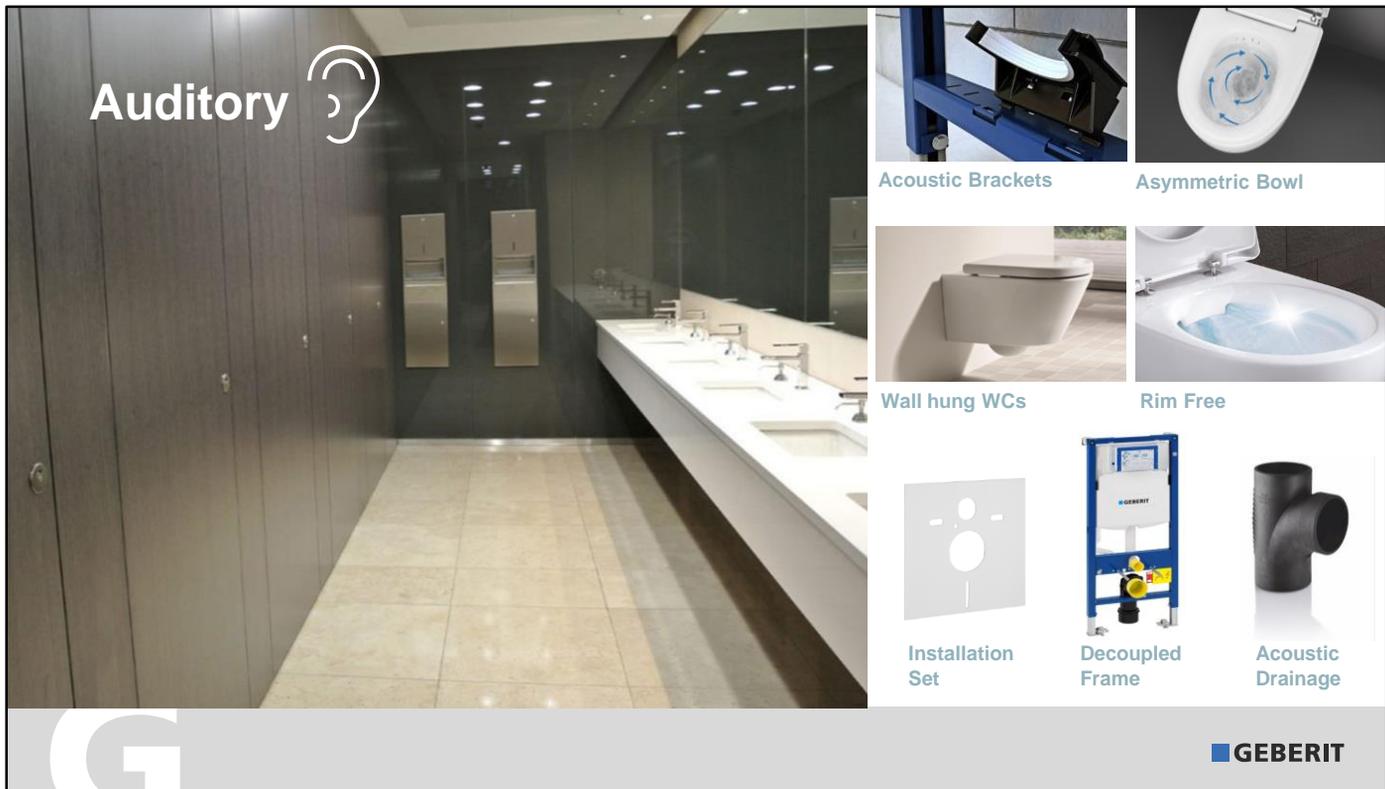
GEBERIT

Which brings us to the washroom as a place of sanctuary in our busy modern lives.

By looking beyond functionality, workplace bathrooms can often be used for escape to let the mind wander in peace, away from an open-plan office environment.

Geberit has recently published a white paper on this subject and we have copies of this document for you to take away today.

In summary, let's look at some of the main considerations for workplace washrooms.



Sound

As we have seen, humans' ability to detect sound helps us communicate and can dictate how we behave.

Managing the acoustics within the bathroom is key to creating a calming atmosphere, and there are a number of ways to do this:

1. Lift the WC off the floor using a frame with an integral insulation cover to the cistern and a quiet fill valve.
2. An asymmetric bowl will also help dampen the sound of the flush in the bowl.
3. Decoupling the WC from the wall finish with an installation set will prevent structural sound transmission.
4. Choose a rim-free toilet with a soft close seat
5. Install an acoustic drainage system, made from a high density material and lag the pipes if necessary to contain the sound of the movement of water within the pipes.
6. Use acoustic brackets as part of that system.

Visual

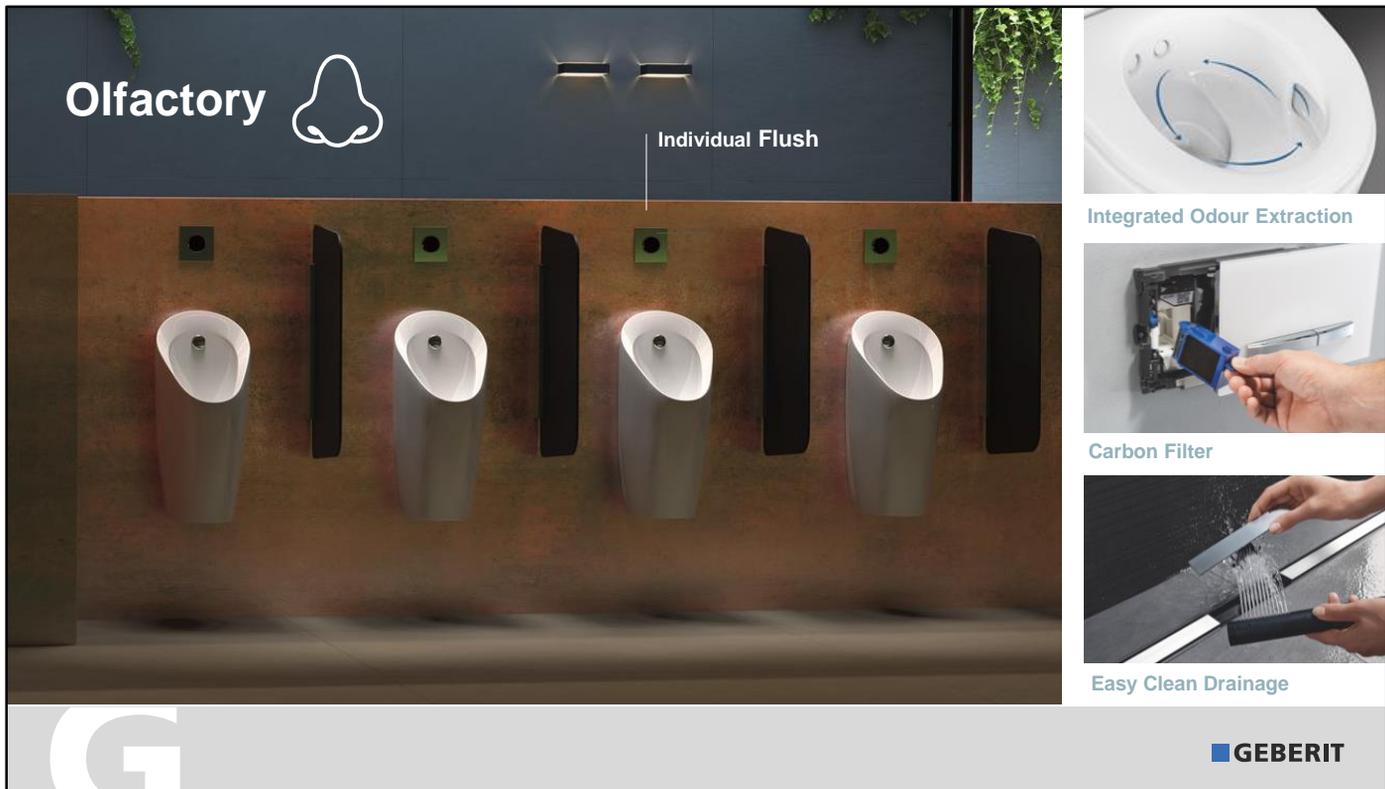


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Visual

How can we optimize restroom design visually?

1. The main consideration is light. We need light to see, but harsh light / flickering fluorescent lights can be problematic and low level ambient lighting can be impractical.
2. Replicating natural light wherever possible delivers the illusion of space.
3. Mirrors can help with this too and can also create an illusion of depth in an area.
4. Presence-detecting orientation lighting in the area, will be energy efficient.
5. Touchless WC flush plates can add to the ambience of the cubicle space itself and can be set to flush automatically as the user leaves the area, which is great for commercial washrooms.



Smell

Washroom odours are generally dealt with by masking the bad smell with a spray of some description.

The latest thinking focuses on filtering the air within the space to neutralise unwanted odours and then gently breezing it back into the room.

1. Consider WCs equipped with integrated odour extraction.
2. And flush plates that extract odours through a carbon filter, with an LED display which shows when a replacement filter is needed.
3. Urinals with individual flushes save water and ensure there is no build-up of uric acid.
4. Stop dirt accumulating with shower traps that are easy to clean.

Kinesthetic



Easy clean, room temperature surfaces



Remote control operation



Presence-detecting flush



Conserve 80% Water



Surface Technology



GEBERIT

Touch

There are several innovations we can use to ensure that washrooms are user-friendly and tactile:

1. Consider remote control WC flushing.
2. Presence-detecting flush mechanisms are hygienic and ensure that every WC is flushed automatically, which is great for commercial washrooms .
3. Touchless taps are both hygienic and also help to conserve water – ensuring no taps are left running overnight or at weekends.
4. Rimless WCs, and advanced surface technology, helps conserve water by providing a more effective flush.
5. Smooth, easy to clean surfaces are more hygienic and materials that remain room temperature are more relaxing to the touch.
6. Heated toilet seats are also becoming increasingly popular.

Creating The Future

Water Saving

Reduced Energy Usage

Sustainable

Low Flush Volumes

Environmental Assessment

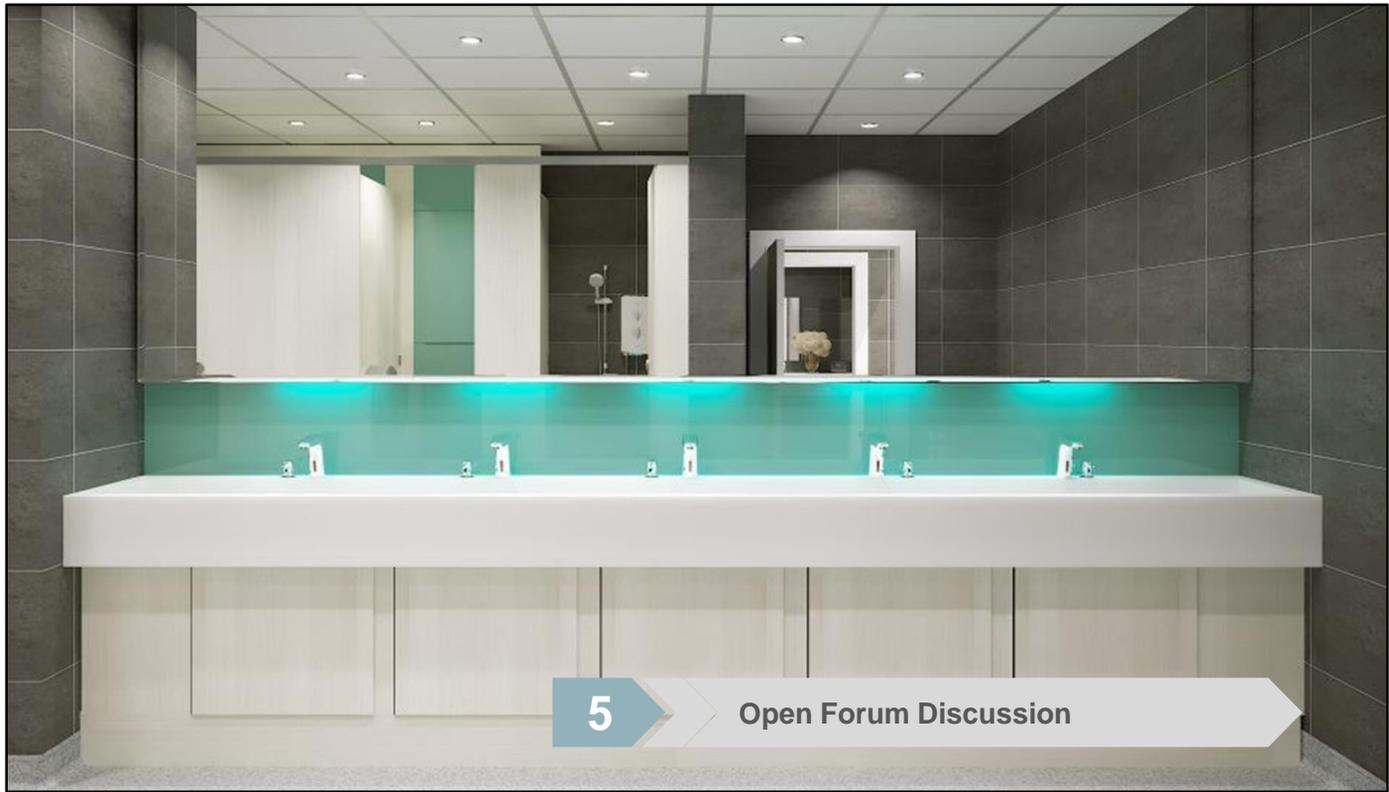


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Everything we've discussed so far has been focused on creating comfort in the present

But there's no reason why we can't create inspirational washrooms that promote well-being and look after the planet for future generations.

1. Water-saving developments such as low volume flushing and dynamic flushing for urinals can conserve water and remain efficient.
2. Taps connected to a self-sustaining generator can reduce the ecological impact by 50% compared to batteries and by 80% compared to an electrical connection.
3. Smoother surfaces are easier to clean and can mean fewer cleaning agents.
4. The growing trend toward shower toilets can also help to send fewer materials to landfill, requiring fewer or no paper and wet wipes.
5. Many sanitary ware products are now made from 100% recyclable, natural minerals, such as quartz, feldspar, clay and kaolin.
6. Go for a lead-free glaze if possible.
5. Environmental assessment methods, like BREEAM enable us to rate sustainable innovations that are more sustainable and help us mitigate the life cycle impacts of new buildings on the environment in a robust and cost-effective manner.



So that's it from me.

Hopefully you've seen that a modern washroom can be much more than a functional space and that good design can provide a space of respite and tranquility from an increasingly hectic world.